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Theoretical-experimental method of determining the drag coefficient of a harmonically oscillating thin plate

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Abstract

© 2016, Pleiades Publishing, Ltd.A method for determining the drag coefficient of a thin plate harmonically oscillating in a viscous incompressible fluid is proposed. The method is based on measuring the amplitude of deflections of cantilever-fixed thin plates exhibiting damping flexural oscillations with a frequency corresponding to the first mode and on solving an inverse problem of calculating the drag coefficient on the basis of the experimentally found logarithmic decrement of beam oscillations.

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Keywords

damping, decrement of oscillations, drag coefficient, free mechanical oscillations, viscous incompressible fluid